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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/570,815	03/06/2006	Josef Bader	ZAHFRIP824US	4903

20210 7590 09/02/2008
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EXAMINER	
KNIGHT, DEREK DOUGLAS	

ART UNIT	PAPER NUMBER
3681	

MAIL DATE	DELIVERY MODE
09/02/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/570,815	BADER, JOSEF	
	Examiner	Art Unit	
	DEREK D. KNIGHT	3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-22* is/are rejected.

7)☒ Claim(s) *21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 21 is objected to because of the following informalities: In line 2 “adjacent the” should be changed to --adjacent to the--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "the drive output shaft" in line 10. There is insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitation "the drive output shaft" in line10. There is insufficient antecedent basis for this limitation in the claim.

Claim 22 recites the limitation "the drive output shaft" in line 10. There is insufficient antecedent basis for this limitation in the claim.

Claims 14, 20, and 22 recite the limitation "an input shaft" in line 10. An input shaft has already been disclosed in each of the claims; it is unclear to the examiner if a different input shaft is being claimed. For the purpose of examination the Examiner will assume that the applicant is referring to the same input shaft.

Claims 15, 16, 17, 18, 19 and 21 recite the limitation "the variable-speed gearbox" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "the third and fourth pressure combs" in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 14-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **REYNOLDS (US 5,609,062)** in view of **SANDIG (US 6,334,369)**.

Regarding **claim 14**: **REYNOLDS** discloses a range-change transmission comprising: an input shaft (118); a gearshift sleeve (76) having radially outer teeth, being rotationally fixed to and axially slidable along an end of the input shaft between at least first and second positions; a first counter shaft (80) and a second counter shaft (80) each having a first gear wheel (78) and a second gear wheel (82) fixedly secured thereto; a loose gear wheel (74), having radially inner teeth and radially outer teeth, being rotationally supported by the input shaft; a drive output shaft (72) being coaxially aligned with the input shaft and the drive output shaft having radially inner teeth at an end located adjacent the input shaft; an output gear wheel (84) being fixedly secured to the drive output shaft, and the output gear wheel engages the second gear wheels (82) of the first counter shaft and the second counter shaft; in the first position of the gearshift sleeve, the gearshift sleeve being at least partially located between the input shaft and the loose gearwheel such that the radially outer teeth of the gearshift sleeve

engage with the radially inner teeth of the loose gear wheel and the input shaft drives the output shaft via the first and the second counter shafts; in the second position of the gearshift sleeve, the radially outer teeth of the gearshift sleeve engage with the radially inner teeth of the drive output shaft so that the input shaft directly drives the drive output shaft via the gearshift sleeve.

REYNOLDS does not disclose first and second pressure combs, carried by opposite sides-of the output gear wheel, maintaining the output gear wheel in axial alignment with the second gear wheels of the first and the second counter shafts.

SANDIG teaches gears of a transmission device being formed with pressure comb pairs (Fig. 14, 1584a, 1586a, and 1584b, 1586b).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the gears within the transmission of **REYNOLDS** to be formed with pressure combs in view of **SANDIG** to secure the axial position of the gears and to provide a uniform axial force transmission via both pairs of pressure combs (SANDIG, col. 10, In. 31-34).

Regarding **claim 15**: **REYNOLDS** discloses a range-change transmission.

REYNOLDS does not disclose third and fourth pressure combs, carried by opposed sides of the loose gear wheel, maintaining the loose gear wheel in axial alignment with the first gear wheels of the first and the second counter shafts.

SANDIG teaches gears of a transmission device being formed with pressure comb pairs (Fig. 14, 1584a, 1586a, and 1584b, 1586b) to secure the axial position (SANDIG, col. 10, lines 12-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the gears within the transmission of **REYNOLDS** to be formed with pressure combs in view of **SANDIG** to secure the axial position of the gears and to provide a uniform axial force transmission via both pairs of pressure combs (SANDIG, col. 10, In. 31-34).

Regarding **claim 16**: **REYNOLDS** discloses a range-change transmission.

REYNOLDS does not disclose the first and the second counter shafts being maintained in axial position, relative to the drive output shaft, by at least the first and the second pressure combs.

SANDIG teaches gears of a transmission device being formed with pressure comb pairs (Fig. 14, 1584a, 1586a, and 1584b, 1586b) to secure the axial position (SANDIG, col. 10, lines 12-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the gears within the transmission of **REYNOLDS** to be formed with pressure combs in view of **SANDIG** to secure the axial position of the gears and the respective shafts to which the gears are attached, while providing a uniform axial force transmission via both pairs of pressure combs (SANDIG, col. 10, In. 31-34).

Regarding **claim 18**: **REYNOLDS** discloses a range-change transmission with a housing (H).

REYNOLDS does not disclose the first and the second counter shafts being only radially supported by the housing.

SANDIG teaches the shafts (1532a/ 1532b) of the gears being only radially retained by bearings (1534a/ 1534b), see Fig. 14.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the counter shaft mounting within the transmission of **REYNOLDS** such that the shafts would be only radially supported in view of **SANDIG** to allow the pressure combs to secure the axial position of the gears and the respective shafts to which the gears are attached, while providing a uniform axial force transmission via both pairs of pressure combs (SANDIG, col. 10, ln. 31-34).

Claims **17 and 19-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over **REYNOLDS (US 5,609,062)** in view of **SANDIG (US 6,334,369)** as applied to claims 14-16 and 18 above, and further in view of **LOEFFLER (US 4,807,493)**.

Regarding **claim 17**: The combination of **REYNOLDS - SANDIG** discloses a range-change transmission with a housing (H) and a bearing supporting the drive output shaft.

The combination of **REYNOLDS - SANDIG** does not disclose the type of bearing that is supporting the drive output shaft.

LOEFFLER teaches using a double conical-roller bearing (172/174) to support the drive output shaft (120) of the transmission.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the bearing of **REYNOLDS - SANDIG** with the double conical-roller bearing taught by **LOEFFLER** because substituting one bearing with

another would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Regarding **claim 19**: The combination of **REYNOLDS - SANDIG** discloses a range-change transmission wherein the first and the second counter shafts are only radially supported by a housing via bearings (1534a/ 1534b).

The combination of **REYNOLDS - SANDIG** does not disclose the type of bearing.

LOEFFLER teaches using roller bearings (110) to support its countershafts (106/108).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the bearing of **REYNOLDS - SANDIG** with the roller bearing taught by **LOEFFLER** because substituting one bearing with another would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Regarding **claims 20 and 22**: The combination of **REYNOLDS - SANDIG** discloses a range-change transmission comprising: an input shaft (118); a gearshift sleeve (76), having radially outer teeth, being rotationally fixed to and axially slidable along an end of the input shaft between at least first and second positions and a neutral position; a first counter shaft (80) and a second counter shaft (80) each having a first gear wheel (78) and a second gear wheel (82) fixedly secured thereto; a loose gear wheel (74), having radially inner teeth and radially outer teeth, being rotatably supported by the input shaft and axially movable therealong; a drive output shaft (72) being coaxially aligned with an input shaft, the drive output shaft having radially inner teeth at

a first end located adjacent the input shaft and bearings radially and axially support the drive output shaft within a housing (H); an output gear wheel (84) being fixedly secured to the drive output shaft, and the output gear wheel engaging the second gear wheels of the first counter shaft and the second counter shaft; in the first position of the gearshift sleeve, the gearshift sleeve being at least partially located between the input shaft and the loose gear wheel such that the radially outer teeth of the gearshift sleeve engage with the radially inner teeth of the loose gear wheel and the input shaft drives the output shaft via the first and the second counter shafts: in the second position of the gearshift sleeve, the gearshift sleeve being at least partially received within a the first end of the drive output shaft and the loose gear wheel such that the radially outer teeth of the gearshift sleeve engage with the radially inner teeth of the drive output shaft so that the input shaft directly drives the drive output shaft via the gearshift sleeve; a first pair of pressure combs are carried by opposed sides of the loose gear wheel for maintaining the loose gear wheel in axial alignment with the first gear wheels of the first and the second counter shafts; and a second pair of pressure combs are carried by opposed sides of the output gear wheel for maintaining the output gear wheel in axial alignment with the second gear wheels of the first and the second counter shafts.

The combination of **REYNOLDS - SANDIG** does not disclose the bearings that radially and axially support the drive output shaft within the housing being double conical-roller bearings.

LOEFFLER teaches using a double conical-roller bearing (172/174) to support the drive output shaft (120) of the transmission.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the bearing of **REYNOLDS - SANDIG** with the double conical-roller bearing taught by **LOEFFLER** because substituting one bearing with another would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Regarding **claim 21**: The combination of **REYNOLDS - SANDIG** discloses a range-change transmission wherein the first pair of pressure combs are arranged closely adjacent the outer teeth of the loose gear wheel and have lateral pressure surfaces which engage with lateral pressure surfaces on the first gear wheels of the first and the second counter shafts and the second pair of pressure combs are arranged closely adjacent the outer teeth of the output gear wheel and have lateral pressure surfaces which engage with lateral pressure surfaces on the second gear wheels of the first and the second counter shafts.

Response to Arguments

Applicant's arguments with respect to claims 14-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEREK D. KNIGHT whose telephone number is (571)272-7951. The examiner can normally be reached on Mon - Thurs & every other Friday, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on (571) 272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. D. K./
Examiner, Art Unit 3681

/CHARLES A. MARMOR/
Supervisory Patent Examiner, Art Unit 3681